

Pisidium variabile Pme. Ditch at Kaighn's Point.

Pisidium compressum Pme. Canal at Manayunk.

UNIONIDÆ.

Unio complanatus Solander. Delaware and Schuylkill Rivers, very common; canal at Manayunk, very fine specimens; Muckinipallus Creek, Glenolden, Delaware Co. (Vanatta); Corinthian Reservoir (Ford).

Unio nasutus Say. Delaware and Schuylkill Rivers, common. Typical locality.

Unio radiatus Lam. Canal at Manayunk, abundant; Delaware River, not common.

Unio heterodon Lea, Canal at Manayunk, uncommon; canal in 27th Ward (John Ford); Neshaminy Creek (C. W. Johnson).

Unio ochraceus Say. Delaware River, common. (Type locality).

Unio cariosus Say. Delaware River, rare. (Type locality.)

Margaritana undulata Lea. Raccoon Creek, N. J.; Canal at Manayunk; Muckinipallus Creek, Glenolden, Delaware Co. (Vanatta); Neshaminy Creek (Johnson); "Delaware and Schuylkill Rivers" (Say).

Margaritana marginata Say. Tohickon Creek, Bucks Co.; Neshaminy Creek (C. W. Johnson); Muckinipallus Creek, Glenolden, Delaware Co. (Vanatta).

Anodonta fluviatilis Lea. Delaware and Schuylkill Rivers; canal, Manayunk, moderately common; Muckinipallus Creek, Glenolden, Delaware Co. (Vanatta); Wister's Dam, Germantown (Stone); Lily Pond near Memorial Hall (V.).

Anodonta fluviatilis Tryoni Lea. Typical localities, Schuylkill River above Phila., and Delaware River at League Island; Westville, N. J. (Fox).

Anodonta undulata Say. Canal, 27th Ward (J. Ford).

NOTE ON THE SPECIES OF VERONICELLA FOUND IN CENTRAL AMERICA.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STA.

It must be confessed that our knowledge of the Central American forms of *Veronicella* is singularly inadequate, and the purpose of this note is mainly to draw attention to the matter, in the hope that those who have the opportunity will add to our information.

It may be as well to say at once, that for satisfactory work in this genus it is desirable to have at least a dozen mature examples of each species. Working with few examples, there is danger of taking varietal characters for specific ones, if the species is little known. Once the true specific characters have been ascertained from a good series, any single example, if mature, can be determined; but it is quite otherwise when the form is new, or belongs to a species which has been described from only one or two examples.

From necessity, species in this genus have, in the past, usually been described from one or two specimens. The descriptions, if prepared with reasonable care, even without anatomical details, will, I believe, be easily recognizable hereafter. But at present we do not know, in very many cases, *which* of the characters mentioned in the descriptions are really specific, and consequently whether the assumed species are valid.

I do not wish to suggest that species of *Veronicella* ought not to be described without numerous examples. If naturalists were to wait in every case until the material was as abundant as they could desire, our knowledge of tropical species of many groups would hardly advance at all. When a student introduces a presumed new species of *Veronicella*, having carefully ascertained that it *differs* from all previously described forms, and in his description sets forth that difference, he undoubtedly does good service. We are not to be prevented from interesting ourselves in the forms of *Veronicella* because we do not always know whether we are dealing with species, races, or varieties. But we *should like* to know the real status of each form, and must consequently urge those who have the chance to collect material to do their best to obtain sufficient.

The first Central American *Veronicella* to be named was *V. olivacea* Stearns, 1871. It was found in Nicaragua and has been supposed to inhabit California also. Although it is practically certain that it is not a native of California, it has been described in works on North American mollusca on the supposition that it belonged to that fauna. I have seen a specimen from Nicaragua, and have given a few descriptive notes in *Ann. Mag. Nat. Hist.*, Nov., 1890, p. 389. Mr. W. G. Binney has published a figure of this same specimen.

The next species was made known in the year following, 1872. This was *V. moreleti* Crosse and Fischer, from Mexico; fulvous with two blackish bands, whereas *olivacea* has no dark bands.

In 1873 a second Mexican species was announced, *V. mexicana* Pfeffer, in Strebel's work on the fauna of Mexico, p. 130. It was 47 mm. long, red-brown to grey-brown and black-brown.

For many years no more additions were made; until in 1885 (or Jan. 1886?) Dr. Semper's elaborate work on the genus appeared. In this, on p. 293, we find *V. mexicanus* n. sp., from Mexico; but the author having discovered, too late to change the text, that there was already a species of that name, takes the opportunity of writing *V. strebelii* instead on the explanation to the plate. This *mexicanus* = *strebelii* is 51 mm. long, $15\frac{1}{2}$ broad, with the female orifice $1\frac{1}{2}$ mm. from sole and almost exactly equidistant from each end. On p. 316 of the same work, Semper describes a true *mexicanus* Pfeff., which he had from Strebel. It was found in Vera Cruz, and was whitish-flesh, only 20 mm. long, with the ♀ orifice a little hind of the middle. If this specimen was really of the same species as originally described in 1873, it must have been somewhat immature.

In the same work of Semper, p. 295, appears a Chilian species, *V. decipiens* Semper. This is supposed to be also a native of Mexico, but I think the latter habitat must be accepted with some reservation; unless perchance, it has reached there accidentally through human agency. It is dark yellowish-brown, with the mantle black-spotted, 42 mm. long, $16\frac{1}{2}$ broad, ♀ orifice 1 mm. from sole, and somewhat *anterior to the middle*. This *V. decipiens* is very much like the Chilian *V. adspersa* Heynemann; so much so that one strongly suspects that they are forms of one species. They were published nearly at the same time, but I think *adspersa* has priority. Since Semper's work no further additions have been made.

In the British Museum are two other forms, which are the more interesting in that they represent new localities. They do not seem to be precisely identical with any of the described species, but all things considered, it seems preferable to leave them unnamed for the present. Descriptive notes are appended:

(1.) *Veronicella* sp. nov., vel *mexicana* var.

Long. (in alch.) $42\frac{1}{2}$, lat. $20\frac{1}{2}$, sole lat. 10 mm. ♀ orifice from head 22 (almost median), from sole 2 mm. Sole rather rounded posteriorly, not projecting beyond mantle, finely and closely transversely striate. Mantle above rugose-granulose, not at all papillate; color pale grayish-ochreous, above obscurely gray mottled, with the slightest indication of a dorsal and lateral dark band, only noticeable when looked for. Back arched, rounded. Upper tentacles grayish, lower pale ochery.

Honduras. Collector unknown. Heynemann had seen it when he visited the museum, and had written "nov. sp.?"

(2.) *Veronicella* sp. nov., vel *punctatissima* subsp.

Long. (in alch.) $41\frac{1}{2}$, lat. 12, sole lat. 4 mm. ♀ orifice from head 21 (almost median), from sole $2\frac{1}{2}$ mm. Sole very narrow, rounded behind, not projecting posteriorly, regularly and strongly transversely striate its edge longitudinally grooved. Mantle above thickly but rather irregularly impressed punctate, not papillate. Superior tentacles gray, lower pale ochrey.

Jaw brown, not very dark, with 36 very strong ribs. Penis tapering. Color variable, as follows:

- (a) Pale ochreous, above brown from thick brown mottling, with a slightly indicated but quite observable pale dorsal line. *Below with sparse black mottling.* Six examples.
- (b) Similar, but with more or less black spotting also above, though sparse. Four examples.
- (c) Similar, but dark brown above, no pale dorsal line.

Panama, Volcan de Chiriqui. Collector unknown.

The interesting point may here be noted, that whereas the Nicaraguan *olivacea* and the Honduras species are typically Central American forms, and show a good deal of resemblance to the species of the greater Antilles, the Panama species is quite different, and belongs with the series of the lesser Antilles, Trinidad, etc.

NOTES AND NEWS.

UNIO CARIOSUS and OCHRACEUS.—By an unfortunate oversight, the wood-cuts of these two species in the March number were transposed. The figure on page 121 is *U. cariosus*; that on page 122 is *U. ochraceus*.

BYTHINIA TENTACULATA.—A new locality for this species is Black Lake, Holland, Michigan, Mr. L. H. Streng having collected adult and young in all stages of growth there.

MR. H. E. SARGENT, having spent some weeks in New England, has returned to his home at Woodville, Ala.

MR. JAMES M. DE LANEY has removed from Rochester to South Livonia, Livingston Co., N. Y.
